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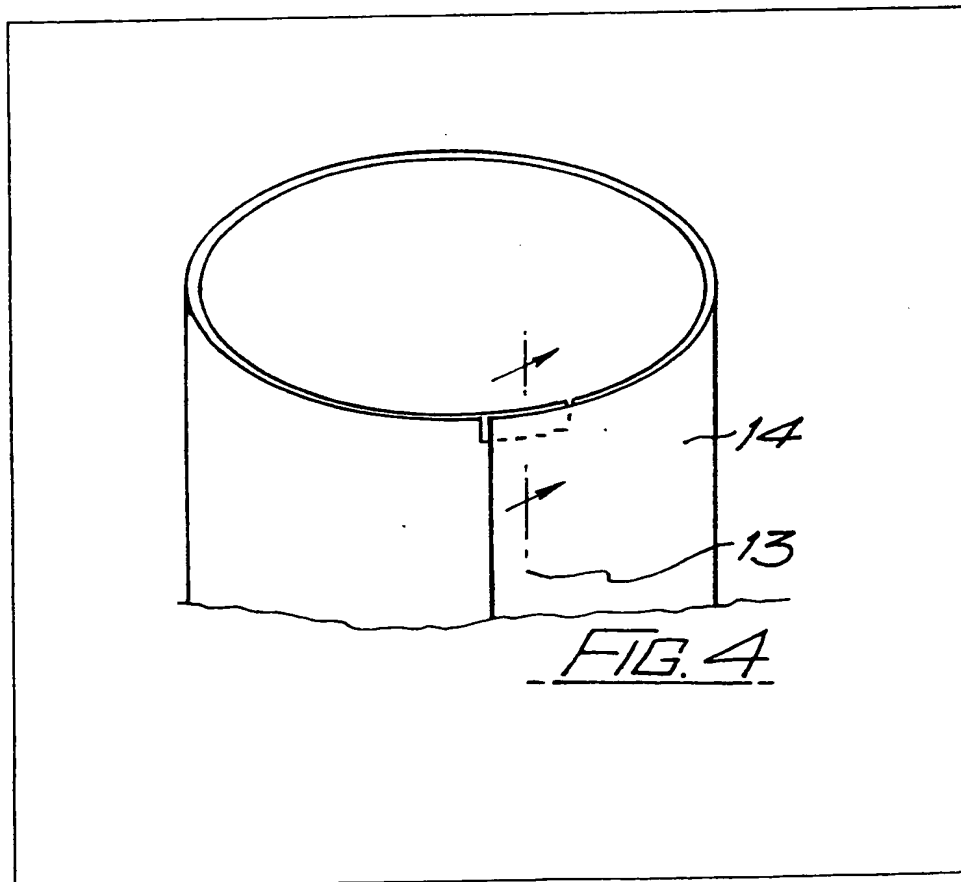
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(54) Double-walled packaging container

(57) A packaging container is made up from a blank, which is of double thickness sheet material, by forming the blank into a tube, and overlapping edges of the tube are secured together to define a side seam, the sheet material being notched or cut-away so that at the ends of the side seam there are only two thicknesses of sheet material to facilitate the connection to the ends of the tube of rim rolled closures.



The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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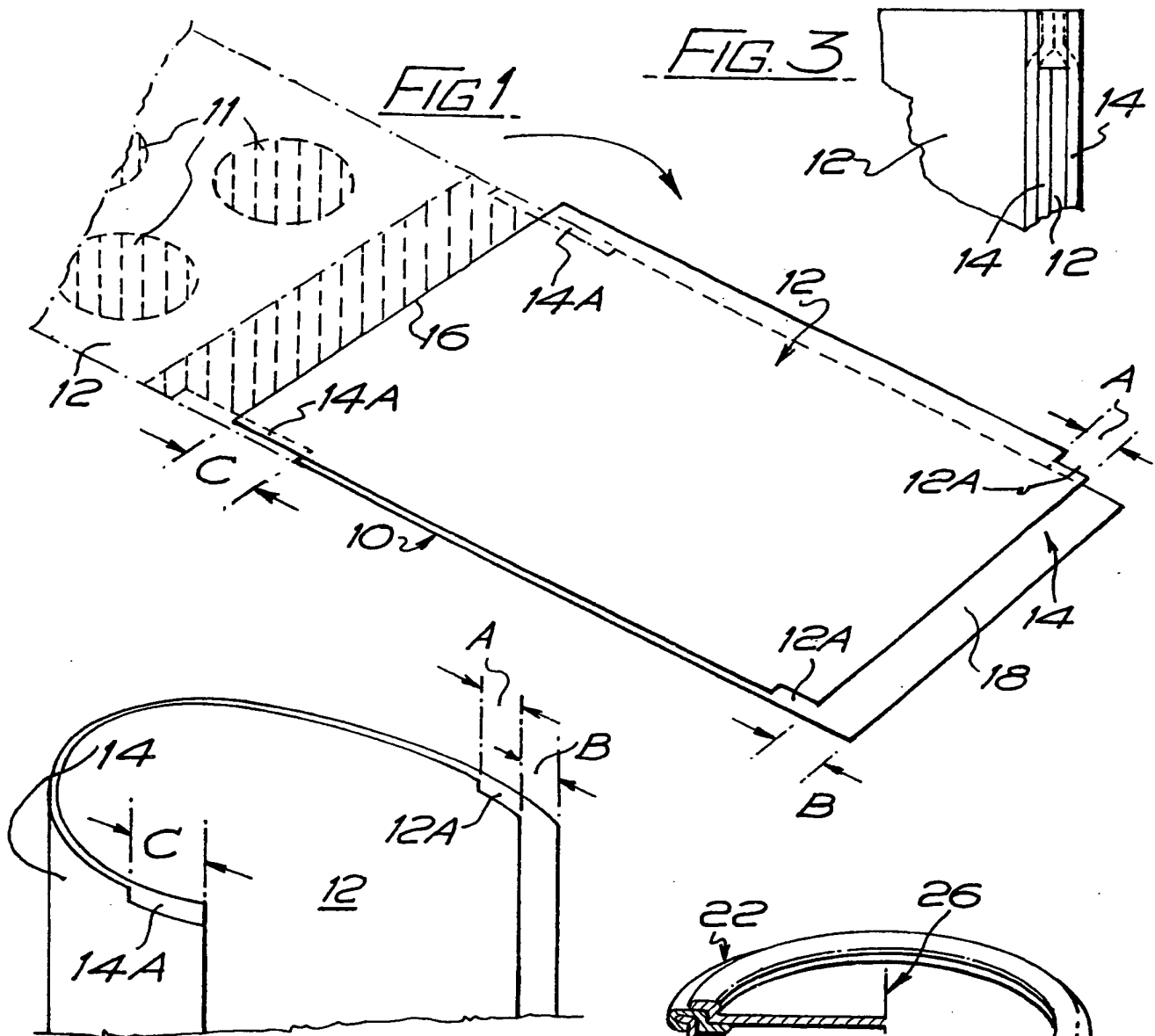


FIG. 2

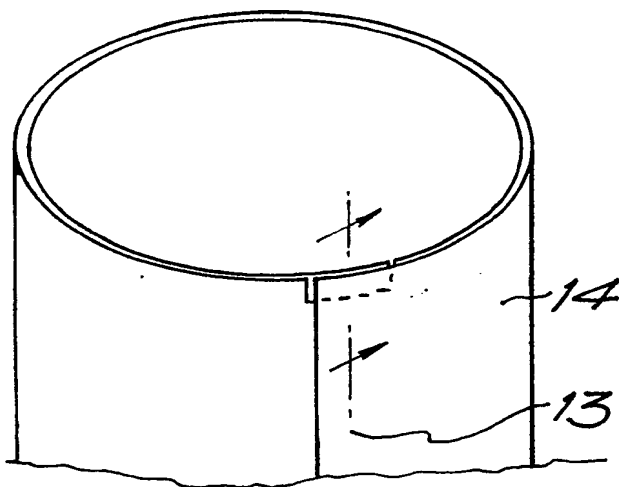


FIG. 4

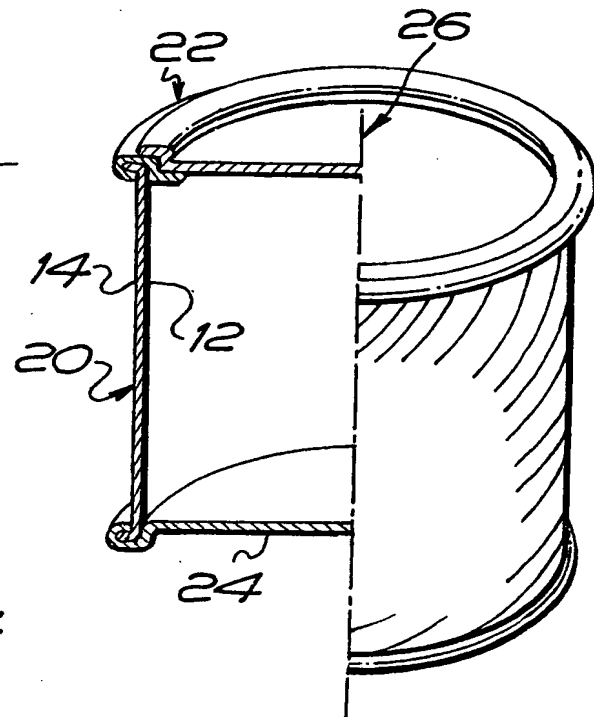


FIG. 5

SPECIFICATION

Double walled container

- 5 This invention related to packaging containers and in particular related to sleeves forming or for forming bodies of containers.

There are a number of packaging containers already commercially in use which comprise essentially a sleeve body and end closures. A very common form of container of this type is the metal can which is used for packaging a wide variety of products including edible and non-edible powders and still liquids. Another form of container has a sleeve body of helically wound cardboard provided with end closures.

These known containers are in many instances attracting public criticism as being too robust and strong for the job which they have to perform, the opinion being expressed that the goods are over packaged, and the customer must therefore be paying an excessive amount for the packaging.

This has led to the use of blanks of cardboard or the like sheet material as sleeve bodies in packaging containers. The blanks are formed into sleeve form and closed by end closures to form the packages. This use of cardboard blanks is for two purposes, namely to reduce the overall price of the packaging, and hence the product to the customer, and to improve customer appeal.

The invention the subject of a co-pending application No. 9367/77 relates to blanks and the use thereof as sleeve bodies for packaging containers.

35 The invention in said co-pending application includes a sleeve body for a packaging container defined by two super-imposed generally rectangular or square blank sections of sheet material joined together only at one pair of adjacent edges and the blank sections are formed together to form a circular section sleeve and either another pair of adjacent edges opposite said one pair of edges are secured to the sections at said one pair of adjacent edges, or one of said other pair of edges, the blank sections being of approximately the same length axially of the sleeve.

This construction has the advantage that the sleeve is in effect defined by two plies of sheet material which lends strength to the sleeve, yet retaining the advantage that the blank sections may be of a material such as cardboard, with the attendant saving in cost of the packaging sleeve as compared with metal or spirally wound cardboard. Furthermore if it is desired that the sheet material of the blank sections have gas or moisture barrier properties inside and outside the sleeve, each ply need be treated in this regard on one side only and the blank sections can be arranged so that the respective treated surfaces face inwards and outwards respectively, the untreated surfaces of the blank sections being arranged opposite one another.

In a particular arrangement, the blank sections are formed in a single blank having a crease line which defines the two sections and by which the sections are joined together. At the said other pair of edges,

the outer section preferably extends beyond the inner section to define a fixing flap which is fixed to the outer section at said one pair of edges so as to retain the edge of said other pair of edges of the inner section in position.

With this arrangement, where one side of the blank is treated as above-mentioned, it is a simple matter to arrange for the treated side to lie on the inside of the inner section and on the outside of the outer section. Said treatment may provide a barrier function for the inside of the sleeve and a decorative function for the outside of the sleeve. The treatment may in this regard comprise the application of a metallic foil layer, giving the sleeve the appearance of being of metal.

The invention of said co-pending application also includes a packaging container comprising a sleeve body as aforesaid of which the ends are closed by end closures, at least one of which is removable or has a removable section. Preferably, both closures are removable or have removable sections.

The invention of said co-pending application also includes a packaging container comprising a sleeve body closed by end closures, said sleeve body being defined by two sheet material sections of generally rectangular shape formed to circular shape. The sleeve body may be as aforesaid.

The closures may be metal closures which are rim rolled to the adjacent edges of both sheet material sections at the ends of the sleeve body.

One of the closures preferably has a removable and replacable lid portion or an easy opening device, for the purposes of gaining access to the contents.

It has been found in experimentation with sleeve bodies as set forth in said co-pending application, that when enclosures are rim rolled thereto a problem arises in the region of the seam which is formed as a result of erection of the sleeve body, in that at the ends of the seam where the closures are rim rolled thereto, there are at least three thicknesses of sheet material as compared to the remainder of the sleeve body end where there are only two thicknesses of sheet material. The result is that where the closure is rim rolled to the sleeve body in the region of the seam end, the material tends to ruck and pucker, and furthermore there is what is known as a "pin holing" effect which means that when the closure is applied there is a danger that in the region of the seam end there will be a small leakage aperture through which the contents of the container can escape.

The present invention seeks to provide an arrangement whereby this disadvantage will be overcome, and in accordance with the present invention the sleeve body for a packaging container is defined by two superimposed generally rectangular or square blank sections of sheet material joined together only at one pair of adjacent edges and the blank sections are formed together to form a circular section sleeve and either another pair of adjacent edges opposite said one pair of adjacent edges, or one of said other pair of edges, are or is secured to the sections at said one pair of adjacent edges, and the blank sections are approximately the same length axially of the sleeve, the sleeve body being further adapted in that

said sheet sections are appropriately notched so that in the packaging container at least one of the ends of the seam only two thicknesses of sheet material section will be presented to the end closure.

5 Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, wherein:-

10 *Figures 1, 2 and 3* are perspective views showing how a sleeve body according to a first embodiment of the invention is produced;

Figure 4 is a sectional view, taken in the line III-III of *Figure 3*, of part of the sleeve body shown in *Figures 1 to 3*; and

15 *Figure 5* is a perspective view, partly cut away showing a packaging container according to the invention which embodies a sleeve body as shown in the other *Figures*.

Referring to the drawings, in the embodiment of the invention of a sleeve body as shown in *Figures 1, 2 and 3*, the sleeve body is constructed from a blank of cardboard or the like material which is shown in full lines in folded condition in *Figure 1*. The blank, indicated by numeral 10 has two blank sections 12 and 14 which are superimposed. The fold line 16 joins the sections 12 and 14 at the adjacent edges. Each section 12 and 14, as can be seen, is of rectangular section, but at the pair of opposite edges to the edges connected by fold line 16, section 14 extends beyond section 12 to provide a fixing flap 18. In the width-wise direction of the sections (length direction of the finished sleeve), the sections 12 and 14 are of the same dimension.

It will be noticed that section 12 at the edge opposite said fold 16 is provided with notchings 12A which are rectangular cut outs having their length direction extending in the length direction of section 12A, these notchings being of a length A. In the flat condition of the sleeve body as shown in *Figure 1* the amount by which section 14 overhangs section 12 indicated by dimension B.

The section 14 at the end adjacent to fold 16 is provided with notchings 14A which are also rectangular form and are of a length C in the direction of the length of the section 14.

45 In order to form the blank to the form shown in *Figure 3* adhesive 11 in this example in the form of a spot pattern and in a band adjacent fold 16 is applied to the section 12 which is then folded over to the position shown in *Figure 1* and then, whilst the adhesive 11 is still sufficiently soft to yield the folded blank is coiled to circular form, and the fixing flap 18 lies to the outside of the sleeve and is fixed to the outside of section 14 at the opposite edge thereof to define a seam 13 as shown in *Figure 3*.

55 The provision of the notchings 12A and 14A provide for the provision of end regions of the sleeve body as shown in *Figure 3* which are defined by only two thicknesses of sheet material. As shown in *Figure 2*, as the sleeve body is being coiled the effective length of dimension B decreases such that when the sleeve body reaches the fully coiled state, the dimension A plus B is equal to the dimension C, and at the end of the seam 13 the portions of sections 12 and 14 which extend beyond the notchings 12A and 14A will become slightly inwardly

tucked as shown in dotted lines in *Figure 4* when a rim rolled closure is applied to the end of the erected sleeve body. It is to be mentioned that depending upon the construction of the sleeve body, only one end of the seam may be provided with said notchings, although in most cases it is expected that each end of the seam will require to be provided with said notches.

70 As the blank sections 12 and 14 are coiled together, as they lie on different radii they slip relatively, hence the reason why the adhesive should be soft during the coiling operation. If the adhesive has set hard before the coiling takes place then it will not be possible satisfactorily to coil the blank section 12 and 14 together, although the use of a strip adhesive adjacent the fold line 16 serves to fix the glued region against relative slippage.

75 After the coiling of the sections and the fixing of the flap 18, the adhesive 11 sets firmly connecting the section 12, 14 in their coiled condition which lends rigidity to the sleeve, which is desirable.

The blank 10 may be guillotined simply from a roll of material of length L and provided with notchings as shown in *Figure 1*. The chain dotted portion of *Figure 1* shows the section 12 in folded out condition.

80 The sleeve shown in *Figure 3* may be provided with end closures to form a packaging container according to the invention. At least one and preferably both of the end closures may be removable, or may have a removable portion.

85 For example, one of the end closures might be provided with an easy opening device or with a removable lid, as shown in *Figure 5*. In *Figure 5*, the sleeve, referenced 20, is shown as being provided with metal end closures 22 and 24. These closures are clinched or rim rolled to the ends of both sheet sections 12 and 14 defining the ends of the sleeve by means of a rim rolling and clinching process which is conventional in nature. The closure 22 is provided with a removable lid 26 for purposes of gaining access to the container interior. The connection of the end closures to the body is enhanced by providing the notching as explained herein as the body ends to which the closures are attached are of double thickness at the seam as well as at the remainder of the end regions.

90 In another embodiment of the sleeve body according to the invention, the body is formed by two similar rectangular blank sections and which initially are separate, but are arranged so that one section extends beyond a section at one pair of adjacent ends, whilst at the other pair of adjacent ends, the other section extends beyond the first named section. At one of these pairs of adjacent ends, the sections are firmly secured, and a spot pattern of adhesive is applied between the sections similar to the *Figures 1 and 2* embodiment. To form the sleeve, the thus joined sections are wrapped, whilst the adhesive is still sufficiently soft, to a circular form and then the outer overlapping portions of section are fixed in a similar manner to that described in relation to the *Figure 5* embodiment.

95 The said sections are provided with notchings similar to notchings 12A, 14A for the same purposes

as notchings 12A, 14A.

In either embodiment the overlapping portions may be glued, or otherwise secured together. Where the sections are of plastic material, these may be welded or heat sealed.

Instead of being rectangular, the blank sections may be generally square, or when rectangular, the longer dimension may be arranged to form the axial direction in the finished sleeve.

- 10 Where it is desired that the material of the sleeve body should have barrier properties, such as resistance to air and (air) moisture penetration, the material of the blank sections, where this is of cardboard, may be treated to impart these properties thereto. Because the present invention involves the use of two sections to constitute the wall of the sleeve body, these sections need to be treated on one side only, as the untreated sides can be arranged facing one another in the finished sleeve body. Thus, in the example illustrated in Figure 1, only one side of the one-piece blank need be treated and in the final sleeve body, this treated surface will lie inside the body and outside the body. If the treatment comprises the application of a metallic foil layer, this may provide a decorative effect as well as a gas barrier property effect.

In the alternative embodiment described but not illustrated herein, the untreated sides of the blank sections would be arranged opposite so that the treated surfaces would lie to the inside and the outside of the sleeve body.

Although a spot and strip adhesive pattern 11 has been illustrated, the adhesive may be arranged in any other pattern or indeed over the entire contacting surfaces of the blank sections and the adhesive may be applied by any suitable means. The adhesive may be hot melt adhesive.

The invention is particularly applicable to the use of cardboard as the material of the blank sections.

The advantage of cardboard is that it is relatively inexpensive as compared to metal and spirally wound tubes, it can be formed readily into the sleeve body form as shown and described and it is warm to the touch which improves customer appeal.

Furthermore, with the calliper of cardboard materials which will probably be used for this invention, the cardboard is deflectible by the fingers, which again improves customer appeal, but the adhering of the sections together with adhesive provides a sleeve of good overall rigidity.

The invention is also the provision of a packaging container comprising a sleeve body and end closures, such sleeve body being double ply sheet material, the sleeve being according to the invention.

CLAIMS

1. A sleeve body for a packaging container defined by two superimposed generally rectangular or square blank sections of sheet material joined together only at one pair of adjacent edges and the blank sections are formed together to form a circular section sleeve and either another pair of adjacent edges opposite said one pair of adjacent edges, or

one of said other pair of edges, are or is secured to the sections at said one pair of adjacent edges, and the blank sections are approximately the same length axially of the sleeve, the sleeve body being further adapted in that said sheet sections are appropriately notched so that in the packaging container at least one of the ends of the seam only two thicknesses of sheet material section will be presented to the end closure.

2. A sleeve body according to claim 1, wherein the sheet sections are notched so that in the packaging at each end of the seam only two thicknesses of sheet material section will be presented to the end closure.

3. A sleeve body according to claim 1 or 2 wherein the one (first sheet) section is notched at said one pair of edges and the other (the second) sheet section is notched at the other pair of edges.

4. A sleeve body according to claim 3, wherein the first sheet section extends beyond the second sheet section, and wherein, in the erected sleeve body, the extent of the notching of the first section circumferentially of the sleeve body equals the extent of the notching of the second section circumferentially plus the amount by which the first sheet section extends beyond the second sheet section.

5. A sleeve body according to any of the preceding claims, wherein the sheet sections are defined by a single blank folded in two.

6. A sleeve body for a packaging container substantially as hereinbefore described with reference to the accompanying drawings.

7. A one piece blank erectible into a sleeve body according to any one of the preceding claims.

8. A packaging container comprising a sleeve body according to any one of the preceding claims 1 to 6, wherein the said at least one or each end is closed by a closure rim rolled to the sleeve body.

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